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FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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THE USE OF PURGATIVES.

It is possible that the old treatment of a physic ball may have a trial in at least one disease in which it has long been held to be contra-indicated. Perhaps the most striking feature of the recent discussion upon Purpura hæmorrhagica by the Central V.S. was its suggestiveness regarding the value of aloes. Three members described cases—four cases in all—of aloes having been given in purpura hæmorrhagica, and though in each case the administration was regarded as a mistake, all the horses recovered. Of course, four cases are far too few to build great hopes upon; but considering the high mortality of the disease and the very dubious value of all the current treatments for it, this heterodox one seems well worth a trial. At first sight it seems empirical; but Mr. Scott in his article in this week's issue suggests some rational grounds for it. At least one of these—the elimination of toxins—sounds very plausible; for one of the few things that seem pretty clear in the obscure pathology of purpura is that toxins play a great part in it.

We have heard practitioners, when talking privately among themselves, relate experiences with aloes in the early stages of influenza very similar to those reported at the Central Meeting in connection with purpura. It appears just possible that as regards some diseases clinicians of this generation have allowed fear of the debilitating effects of purgation to lead them astray. We have all heard of the old times of heroic treatment, when bleeding and strong purgatives were the rule for almost all diseases; and the reaction from those practices has left its mark upon us. Bleeding has all but dropped out of use in this country, though we now recognise that our English revolt against it has been carried too far. Has the reaction against purgatives also gone too far?

THE DISEASES OF SWINE.

Mr. Lloyd has done good service by his paper on "Points in Pig Practice" at the North Midland meeting. Its value lies in its general practical information regarding pigs in health and disease, and its descriptions of many common ailments, not scheduled, from which they suffer. Not a few members are in need of information in these matters. They are not treated so fully as they deserve either in text-books or in the schools; and as a result many men begin investigating reported swine fever knowing very little of pigs and their unscheduled diseases. This alone makes the paper valuable; but this is not all. A time may come, perhaps soon, when practitioners will have more to do with the every-day ailments of pigs than they have ever had before; and many of us have still very much to learn regarding them.

"EXPERIMENTS CONDUCTED WITH A VIEW TO ASCERTAINING THE TOXICITY OF CERTAIN DRUGS INJECTED INTRAVENOUSLY, AND THE ACTION OF SAME, IF ANY, ON TRYPANOSOMES CAUSING TRYPANOSOMIASIS IN GERMAN EAST AFRICA."

The following *resumé* on experiments conducted whilst on active service is forwarded, trusting same will be of interest to some veterinarians.

The main object in publishing these experiments is to show that certain drugs which were considered unsuitable for intravenous injections have been employed successfully in surprisingly large doses without toxic effect accruing.

As practically all the animals of our regiments (7th and 9th South African Horse) were infected with trypanosomiasis, and it being fully realised that nothing of known value could be administered with the object of producing partial or complete recovery, we decided to avail ourselves of an unique opportunity which presented itself for conducting experiments in the direction of ascertaining the minimum toxic doses of certain drugs injected intravenously, and to observe results adverse or advantageous which accrued therefrom on animals infected with "fly."

Before tabulating experiments I would here explain the fact that 95% of animals used were unfit for further service, being in the last stages of the disease and only fit for destruction.

Group I.

Solutions containing Arsenic, as shown hereunder:

Horses inj't'd.	Injection.	A	B
2	5 gr. Arsenic	—	1
1	10 „	—	1
4	15 „	—	3
1	18 „	—	1
39	20 „	3	25
1	22 „	—	1
3	25 „	2	1

Column A, number of animals which lived longer than seven days but less than fourteen.

Column B, number of animals that lived more than fourteen days after injection.

It was observed that 25 grains of arsenic could be injected without causing constitutional or locomotory disturbances, in fact animals were anxious to feed almost immediately after injection.

Group II.

Hydrarg. Perchlor, 1:1000 solution:

Horses inj't'd.	Injection.	A	B
1	100 c.c.	1	—
1	150 c.c.	—	1
2	200 c.c.	1	1
1	300 c.c.	—	1
2	270 c.c.	—	1
3	540 c.c.	3	—

No toxic effects were observed when maximum dose was administered. Profuse diuresis occurred immediately after the injection of some of the larger doses.

Group III.

Solutions of Arsenic and Hydrarg. perchlor. (1:1000) were injected simultaneously on different sides of neck:

Horses inj't'd.	Injections.	A	B
1	10 gr. Arsenic and 100 c.c. 1:1000 Hydrarg. perchlor.	—	1
1	15 gr. Arsenic and 200 c.c. 1:1000 Hydrarg. perchlor.	—	1

No toxic symptoms followed these injections.

Group IV.

Calx chlorinata was next tried. As solutions of this drug had been successfully employed in cases of piroplasma canis infection, it was thought that perhaps it might produce an inhibitory effect on the multiplication of trypanosomes. Whilst no destructive effect on the trypanosomes occurred there was yet no interference with the health of the animals.

Horses inj't'd.	Injections.	A	B
1	80 c.c. 2% sol. Calx chlorinata	1	—
1	150 c.c. 2% sol. Calx chlorinata	1	—

A solution was then made by adding one gallon of water to a mixture of 1 oz. acid boric and 1 oz. calx chlorinata, and of the decanted fluid (hypochlorous acid) 100 c.c. were given to certain horses intravenously; in this case also no constitutional symptoms occurred.

Horses inj't'd.	Injections.	A	B
5	100 c.c. Hypochlorous acid	2	3
* 1	120 c.c. Hypochlorous acid	—	—

* This horse died on fifth day after injection.

Group V.

Later, three horses were set aside and injected, the first of which received 100 c.c. of a 1% solution of Cupri sulph.; the second, 250 c.c. of the same solution, and the third, 300 c.c. Immediately after the injection the animals commenced to feed, and no difference in their appearance could be noticed. Blood smears (wet) examined microscopically before injection showed numerous trypanosomes in an active state. In two cases, on the second day after injection there was a total disappearance of these organisms from the blood stream; whether this was natural or a result of the injection it would be difficult to state. Owing to being transferred we were unable to follow up the cases, nor was sufficient time allowed to examine smears from the third case under treatment.

Conclusions:—

1. All animals which died, died of trypanosomiasis, and not as the result of the injections.
2. We were unable to ascertain definitely the minimum toxic dose of any medicament used. Intravenously injected we feel satisfied that doses beyond those looked upon as dangerous *per orem* can be safely administered.
3. We are of opinion that certain drugs hitherto considered quite unsuitable for intravenous medication can be quite safely administered, and experiments carried out on these lines might result in their effects being therapeutically greater than when administered *per orem*.
4. Except in cases injected with a solution of copper sulphate, the effects of which are open to doubt, in no case did we discover any drug with an inhibitory action on trypanosomes. We consider further experiments with copper sulphate necessary to clear up this point.

W. A. Dykins, Capt. S.A.V.C.
R. P. Jones, Capt. S.A.V.C.
"German" East Africa. 30/1/17.

PURPURA HÆMORRHAGICA.

Professor Wooldridge's excellent paper read before the C.V.S., and the equally excellent discussion which followed give ample food for thought. Both writer and speakers brought home the bald truth that we, even in this scientific age, know little of the disease in question, here there is ample scope for one to gamble in the realms of speculation. May I make a few speculative remarks based upon my own observations.

An animal suffering from purpura is clearly the host of a bacterial *invasion* followed later by a bacterial *infection*. This means that aggressive bacteria have passed the first line of defence and dislocated the second and subsequent lines, according to the phenomena presented. So far as our own present knowledge goes the most aggressive organism in purpura is the streptococcus, but there is no reason to presume that other bacteria may not enter the field against a system already depleted. Knowing the predilection purpura has to follow influenza and strangles, in which diseases the streptococcus plays a prominent part, and that in practice one only sees an occasional case of the former in epidemics of the latter, it is quite reasonable to think that other forces are at work besides bacterial invasions. What are these?

In the winter of 1914 I had a run of purpuric cases, so that I determined, with the limited time and means at my disposal, to look further into them, and I started by examining the blood: the following were the constant data in each case observed. The specific gravity was greatly diminished, a deficiency in erythrocytes, and a reduced calcium content. So far as I could judge the blood stream was free from bacteria.

The lowered sp. gr. could be explained partly, if not wholly by the deficiency in erythrocytes. The loss of erythrocytes would point to bone marrow, spleen, and liver disorganisation, but I consider the deficient calcium content goes a long way towards explaining the phenomena as seen in this disease.

So far as we know, this condition is *prima facie* the sequel of pus-producing organisms and their products. The production of pus has a draining effect upon the metabolism, for it contains blood cells, serum once rich in immune bodies, body cells, and dead and living parasitic bacteria. Pus, in other words, is the by-product of a combat waged between the aggressive bacteria on the one hand and the protective body forces on the other. It would appear that the insoluble bacteria do not pass through nature's protective barriers, but their products (toxins) do, and in the light of this, purpura would appear to be an *auto-intoxication* as against *auto-infection*, and it is the toxins which account for this condition. Whether the aggressive bacteria are located on a mucous surface or in an encapsuled lymph gland, it is more than probable the lymph stream is the primary carrier of the toxins, and I am in entire accord with Mr. Buxton when he alludes to the disintegration of the micro-organisms by the lymphatic glands and the consequent liberation of their "juices."

But why should we find liberation and distribution of bacterial toxins in one case of bacterial infection and not in another—both apparently suffering from the same infection? Clearly the deficiency must be looked for in the host itself, and I have not the least doubt that more than one defect exists. From observation made I have reasonable cause to conclude a deficient calcium content is one, and a very important one, and I venture to think this condition in many cases may be inherited. A decalcified lymph, I take it, is less viscous than a highly calcified lymph, and the less viscous the lymph the greater the osmotic force, and, *pro rata*, the greater the toxic absorption from the infective foci.

Upon the system becoming charged with the toxins, I do not think there can be any reasonable doubt that the endothelial cells of the vessel wall are acted upon. The more watery the blood serum the more easily it passes through; and *vice- versa*, the higher the calcium content the more plastic the blood, and the less likely the hæmorrhage and the effusion. In this light one must look upon purpura as akin to hæmophilia in some respects.

The question now arises; Does the practical application of these views help the practitioner to pilot his patient? I have not treated enough cases based upon these conclusions to dogmatise, but I think they do. If I see the case early I give a mild dose of physic, the object being to stimulate the lacteals and the liver; lower blood pressure; remove the watery elements from the alimentary tract and incidentally from the circulatory systems, eliminate the free toxins. I then begin to charge the system with lactate of calcium in half-ounce doses three times a day: on theoretical grounds the intravenous injection of a weak solution of lime water is indicated, but up to now my courage has failed me, fearing blood coagulation; and subcutaneous injection is out of the question, of course. The patient should be allowed very little water per diem, and such lymphagogues as saline solution, sodium citrate, barley, and barley gruel are contra-indicated.

Wm. Scott, F.R.C.V.S.

Bridgwater.

ABSTRACTS FROM FOREIGN JOURNALS.

Pyoculture.

The development of micro-organisms which grow badly in artificial media may be favoured by the use, not only of organic liquids, such as blood, serum, etc., but also of pus. It is a current practice to maintain pus in the thermostat for a certain time, with the object of facilitating the multiplication of the microbes contained in it.

P. Delbet employs this method systematically for the study of the infections of war wounds. According to the author, the bacteriological examination alone (smears and cultures) does not furnish any indication of the gravity of the infection, as the presence of a given germ does not necessarily indicate that infection of the type usually determined by it will follow—for instance, the bacillus perfringens and that of malignant œdema are found in individuals that do not develope gaseous gangrene. Animal inoculation does not always give good results; and even the opsonic test reveals little as regards the evolution of a wound, the progress of which is largely governed by the local condition.

With the culture of pus, or *pyoculture*, Delbet believes that he is able to obtain the necessary prognostic and therapeutic indications.

If the general and local conditions are such that the patient is not able to combat the microbes, the latter are found in great numbers and grow abundantly in the secretions of the wound. If the conditions permit resistance of the patient against infection, the germs find an obstacle in the secretion, and grow in it with more difficulty. If, on the other hand, the patient has overcome the infection, the germs do not grow in the secretions, and are even destroyed in them.

The technique of the method is as follows. Pus is taken up from the wound with a pipette; a part of it is used to make a smear preparation, and another portion is sown upon broth. The pipette is then sealed in the flame, and placed in the thermostat along with the broth. Twenty-four hours later, preparations are made from the remaining contents of the pipette and from the

broth; and Delbet distinguishes between three types of results.

In the first type, the culture is more abundant in the pus than in the broth. Here the prognosis is grave, and energetic surgical measures are indicated.

In the second type, the culture is positive in the broth alone, and not in the pus. This indicates a state of resistance against the micro-organism, and such a case responds well to treatment.

In the third type, there is bacteriolysis in the pus. This indicates that the patient has overcome the infection, and treatment is not necessary.

Often pyoculture is elective, in the sense that of various germs present in the pus some only may develop.

Other workers besides Delbet have had good results from pyoculture, while others, again, have had less success. The exact value of the method, therefore, is not yet definitely settled.—(*La Clinica Veterinaria*).

Poisoning from Boric Acid Dressings.

Savariaud has published an article upon this subject (*Mon. de la Farm, y de la Terap*). Dressings of boricated water may be applied to wounds, and fairly large doses of boric acid may be absorbed by the mouth, without danger. On the other hand, the treatment of wounds with pulverised boric acid involves the risk of grave intoxications. Fatal accidents have also been observed to occur after the application of boric acid ointment to burns. The author has observed one case of poisoning which fortunately did not terminate fatally, and which occurred in a patient with extensive burns. The wounds were powdered with pulverised boric acid, and the treatment was repeated after an interval of two days. The patient was in a disquieting condition for some days. Seven days after the powder had been applied for the second time, the urine still contained appreciable quantities of boric acid.—(*Revista de Veterinaria Militar.*)

[Presumably this case occurred in the human subject.—*Transl.*]

Sugar in the Treatment of Wounds.

Sugar, in the form of wines and sugared liquors, has always been considered as a cicatrising agent. Lhoste, reckoning upon the recognised cicatrising properties of sugar, has utilised it in veterinary surgery with good results. Two horses, with deep wounds of the carpus, were first treated by washing with an isotonic solution of sodium chloride, and afterwards the wounds were covered with sugar. Five days later the dressings were removed, when the wounds appeared rosy, of "unimprovable" aspect, and undergoing cicatrisation.

The second dressing was removed five days after this, revealing only a superficial wound, the total recovery of which was obtained in twenty days. Other cases of wounds, some of them serious ones, were treated in the same manner, and the results were always excellent.—(*Revista de Veterinaria Militar.*)

W. R. C.

NORTH MIDLAND VETERINARY ASSOCIATION.

[National V.M.A.—Northern Branch.]

(*Concluded from p. 412*).

Points in Pig Practice.—Discussion.

The President: Gentlemen,—There are Pig diseases that I am sure some of you have met with, and you may be glad of the opportunity of eliciting some information from Mr. Lloyd on those diseases outlined in his very able paper which may be of use to you.

Mr. W. Collinson: Mr. President and Gentlemen,—I must first thank Mr. Lloyd for his very able and interesting paper. Three or four years ago I was called to a place where there was a sow with about twelve young pigs about a fortnight old, and the teats were so sore that she would not let the young ones suck. The owner (a woman), who came from Norfolk, told me that in their country, when a sow gets very tender from being bitten, somebody cuts off the teeth of the little ones. I thought this was a good suggestion and snicked off the canine teeth. I saw the woman a few weeks after and she said that the teats were all right.

As to paralysis in the hind quarters: I have had a good many cases where a sow has had a second litter and has been suckling them for a month, and then gone off her hind quarters. I should like to ask the cause of this paralysis.

I have had a lot of sudden death among store pigs. The history in most cases has been that the pigs have been thriving and doing well, being fed on sharps and bran. In most cases the pig has walked to the trough, got a few mouthfuls, and then has run back, fallen down, and died. In some cases you may go into a pig-stye and find a pig lying down looking as if he is asleep, but on examination he is found to be dead. It may be in such cases that death is due to pressure of the stomach on the heart after feeding.

Mr. Lloyd recommends drenching. I never do this. I always supply medicine as an electuary. I think drenching is rather risky.

In my part of the country we get some very rough styes, badly drained, and considerable skin affection. I would like to ask Mr. Lloyd what treatment he recommends in cases where the pig is not likely to be fit for food, and where no object would be served by killing. I am rather surprised to hear that bran is not a good food. There is a lot used in my district: as a rule it is steeped overnight: I do not know whether that is an advantage. They do not use it alone, but add a little sharps. Where pigs have had epilepsy, I have found that by not giving them any food for 24 hours and giving a good dose of jalap in the form of an electuary, and only half rations for a time after, the pigs usually recover. Prolapsus ani I have not found to do well under treatment.

Mr. Collinson related a case illustrating how much a pig can "stand" in connection with peritoneal troubles: and went on to say: I had a case some time ago of a pig with a rupture of the bladder, and I should think there would be quite three gallons of urine in the abdominal cavity, but I could not see any sign of uræmic poisoning. I was wondering if anyone could state how long a pig could exist with rupture of the bladder and accumulation of urine in the abdominal cavity.

I should like to ask Mr. Lloyd if he can tell me on what grounds the Inspectors of the Board make their diagnosis of anthrax. I have had several cases of what I have thought was anthrax in pigs, which I have reported and which have not been confirmed. I myself always make a section of the gland and take my scraping from that.

Does not Mr. Lloyd think that in most cases of swine erysipelas the trouble is due, in the first instance, to the food? I had some pigs a few weeks back which were about ready for killing and which became affected. The owner had got a change of meal and had given a little to the pigs for about four days, when they "broke out." In the first case I saw the pig did not show any signs of discoloration. The owner decided to fetch in the butcher, and as soon as the carcase was scalded it went a fearful colour.

Mr. G. J. FURNESS: I think we must compliment Mr. Lloyd on the fulness of his paper and the way in which he has got through it.

Mr. Collinson's wrinkle with regard to the administration of medicine in the form of an electuary is good. I usually recommend the cutting off of the tip of a cow horn and using it as a funnel. I have also known owners get good results by using a horn for giving food to suckling sows.

A year or two ago we had almost an epidemic of sudden deaths in one particular area. The pigs were fed overnight and apparently healthy, but were found dead in the night. This occurred in a very small area, and the owners began to suspect poison. On examination of the bowels there was no trace of poison found, and I was not of the same opinion as the owners. The pigs were of various sizes, from 8 or 9 to 25 stone.

I think he would be a very clever man who could differentiate between rheumatism and rickets. Moving into a good dry stye, with a good bed, has a good effect in these cases.

Sharps is a fairly common food for pigs. I do not know why it should be so. Bran is also much used. These two are almost a staple food with the cottagers. I consider maize meal preferable as a food. When I was a lad at home we used to get it and cover it with hot water, stir it up till it got thick, and then add the whey from cheese making. I do not think you can find a better fat-producing food than this. The pigs were, of course, large ones.

Epileptic fits, I think, are fairly common among pigs, and I have seen a case within the last three days, in a sow just before farrowing.

Hospital swill as a food for pigs I know nothing of. A week or two ago I was called to a sow, and my attention was drawn to one or two pigs. One had died, one was bad, and three or four were suspected of being bad. I made a post-mortem on the carcase of the one, and advised the owner to slaughter the rest. I found subsequently that the owner had just commenced to feed the pigs with horseflesh from the knacker's yard. I had asked on my previous visit if there had been any change in the food, and was told that there had not been.

I have never met with rupture of the bladder in a pig, but I have heard of a case of a cow which lived 28 days with rupture of the bladder. I am sure it has been a most instructive paper, and I can only offer my quota of thanks to Mr. Lloyd for having brought such an interesting subject before us.

The PRESIDENT: The paper has covered a wide area, but those of you who have been in a pig district any part of your life and have not refused to attend pigs know that the diseases he has mentioned are not uncommon. In respect of one or two of them the pig seems analagous to man. I do not know that we suffer from swine erysipelas, but we do from erysipelas, and I do not know whether medical men get the same heart affection in the human subject as we do in the pig. From a post-mortem result the latter gives one of the most beautiful morbid specimens one can meet with.

One thing Mr. Lloyd has not touched upon is the question as to whether a sow can have milk fever. I am not troubled much with pig practice now, but in my younger days I was devoted to it. The reason was that my old father told me I could have all the money I could get in pig practice: of course, money in those days was a great consideration to me. If any of you have sons that you would wish to bring up in the way they should go, I advise you to give them the pig practice and let them have all they can earn. There is no doubt that the increase in the price of pigs that will be quoted during the war and perhaps some time afterwards, during the relaxation of the stringent restrictions, will induce many people to feed pigs, and it behoves us to assist these men as much as we possibly can, and to learn all we can of a portion of the veterinary practice that has been allowed to lapse. There is nothing in Mr. Lloyd's paper that I can find fault with, because he deals with practically the whole of the subject of diseases; but he has not, to my mind, gone sufficiently into the treatment of the various diseases.

For diseases of the bowels—most diseases of the bowels in pigs are either diarrhœa or constipation—in diarrhœa you can treat them with chalk and soda carb, and any slight carminative that is nice to take. They are very susceptible to anything that is nice. In constipation the most useful drug I have found is calomel. It acts particularly nicely and is easy to give. The quantity given is small in bulk and can be mixed with a teaspoonful of treacle, and if the pig is badly sick and you cannot get him up to drench—and I may say that I do not advise drenching—you can spoon it down him. You will notice that the action is particularly marked and pleases the client. I find that in deciding the doses of calomel to be given in the treatment of pigs the text books are nothing to go by. The text book will tell you to give 15 grains of calomel. In a pig, if it is a biggish sow suffering from what is commonly known as milk fever, *i.e.*, mammitis, with constipation, which you nearly always get in sows with some pigs just born, where they are not getting the milk and are dying wholesale, you will find calomel is about the best remedy. I am not against salts, but you want the remedy that gives satisfactory results. You can give two drachms, and follow it with one-drachm doses at 12 hours: you will find it successful, and will not kill the sow by poisoning. In cases of mammitis the mammary glands want fomenting or dressing with camphorated oil, just wiping the teats, before you put the little ones to the sow.

There are many points in the paper that might be enlarged upon. I have noted raw potatoes. To my mind, if given too freely they have a poisonous action. I should like Mr. Lloyd's opinion as to the quantity one dare give to a pig.

Mr. Lloyd speaks of the post-mortem conditions in swine fever. The ileo-cæcal valve and the large bowels generally are the two principal portions of the pig for which I look: I have never succeeded in finding a diagnostic condition in the stomach, and I should like Mr. Lloyd to tell us the condition that is diagnostic in the stomach.

Fits in pigs are common: when you get them change the food entirely. It is rather difficult at times to find a change, but change it thoroughly. It may take some little time to get clear, because you may have several cases between the changes of food. I have not had much experience of internal hæmorrhage in pigs, because as a rule they are dead before you are called in.

I am very pleased that Mr. Lloyd has at this time taken up this subject, and I trust that we shall all feel that the diseases of pigs are worth more attention than we did before we came into the room.

Mr. BOWETT: Mr. Lloyd mentioned squealing as one of the principal symptoms of illness in the pig. I agree that squealing is a symptom in rheumatism and rickets, but the absence of squealing is often a symptom of disease. If you go round the markets and see a pen of pigs that do not look very well you will see the dealers

pick up a pig by the tail, and if he squeals they will buy him. If he does not squeal they will not buy. I, like Mr. Collinson, prefer to give medicine to the pig in the form of an electuary. I have great faith in calomel. A little time ago I lost a good many porket pigs, and attributed this to some irritant in the sharps. I could not see any other cause to which the deaths could be attributed. I had several cases in the town, and in each case the sharps were obtained from the same mill. I am not quite sure, but in mentioning swine fever I think Mr. Lloyd said that he only looked for the lesions of swine fever, and that he would only look for the ulcers. Some time ago I remember losing a sow and a litter of little pigs. The little pigs died, and we found acute peritonitis. The sow afterwards died, and she had typical lesions of swine fever.

I have also seen affections of the skin in little pigs. These are always associated with little vesicles on the mammary glands of the sow, and in a few days time similar vesicles have been seen all over the little pigs.

Mr. S. E. SAMPSON: I have listened with great interest to Mr. Lloyd's paper and also the discussion. In these days of the high price of food-stuffs it is certainly our duty to consider this subject, and to come to an understanding with regard to the treatment of the ailments of the pig. I do not like drenching a pig. I try as a rule to give medicine in the form of an electuary. You can give pretty nearly anything you want. I had a case where the pig was suffering from what I call milk fever, and I gave her three two-drachm doses of chloral in about six hours. For drenching of pigs I prefer, as Mr. Furness said, a horn with the tip cut off, used as a funnel.

In the treatment of rickets, I think it is a very difficult thing to distinguish what is rheumatism and what is rickets. I have found the most successful thing in rickets in young pigs is to give liberal doses of Cod liver oil. I do not think we are warranted in giving Salicylate of soda.

There is no doubt that the food of pigs is greatly adulterated, and, more than that, there is not only the adulteration, but a great part of the essential properties of the food are taken out. This means that other food will have to be found. If people, in the autumn, would only collect the acorns, that would form a good food for pigs if given in proper quantities.

Mr. Lloyd said something about pigs suffering from peritonitis. I think, with Mr. Collinson, a pig can stand nearly everything with regard to the peritoneum. I was asked to castrate a litter of pigs. There were seven boar pigs, and five were ruptured. I had a similar experience to the case mentioned by Mr. Collinson.

Some years ago I came across a condition in pigs (I think Mr. Lloyd mentioned it). It was generally first or second litter, and they were about a month after pigging. It was a sort of epidemic, and within about a mile of one particular place I had within the teens of cases, of sows which got paralysis. Some died, and some did not. Those pigs which responded to a dose of calomel got better. In the post-mortems I made I could not find anything, except in the sub-lumbar muscles—the undercut: there was a small patch of muscles about an inch to an inch-and-a-half which was degenerated and gelatinous. That was the only symptom present. The pigs that did recover were those that responded to the dose of calomel.

In swine erysipelas, the cases I have seen have been isolated cases which have easily responded to treatment, and I think that calomel or hypo-sulphate of soda has been most effective.

I, also, should like to thank Mr. Lloyd for his most interesting paper.

REPLY.

Mr. President and Gentlemen,—I perhaps did not say as much with regard to the treatment of pigs as I had intended when I commenced to write my paper, but it is rather a difficult matter for me to say anything with regard to treatment, having been out of practice for so many years. Several speakers have mentioned giving medicine as an electuary. That I have not done to any large extent. I also have used the horn, and I might say that at some farms they keep horns especially for that purpose. My experience is that when they have been used many times the pigs bite them, and they become dirty and ragged. In the country it is sometimes difficult to get a horn and it is not difficult to get a shoe.

Mr. Collinson mentioned the treatment of little pigs in the case of sore teats. It is quite a common treatment in many parts of the country, but unfortunately the inspector of the Sheffield Society for the Prevention of Cruelty to Animals had never heard of it, with the result that a well-known character in Sheffield who was seen to do this was prosecuted and sent to gaol. He had no expert evidence: if he had, he would no doubt have been found "not guilty."

Paralysis of the hind quarters in sows, I think, has been dealt with by one of the other speakers. I think the sow is "pulled down" in condition owing to her having to feed so many pigs, and with kind treatment there is no difficulty in getting her well.

Mr. Collinson mentioned little pigs going to the trough and falling back, having fits. There is no doubt the food has something to do with this. I think it is really acute indigestion with brain symptoms, and I think complete change of food is the best thing you can adopt. I mentioned that cases of sudden death with no symptoms were due to pressure of a distended stomach on the heart and lungs. I will stick to what I said about bran. I cannot say whether it is scalded or whether it is given wet or dry.

I was interested in the remarks about spaying and peritonitis, and also castration and peritonitis, and I quite agree with a good deal that has been said—you can take very great liberties with the peritoneum.

I take it that the urine is secreted in very small quantities, and, with rupture of the bladder, after some time there would no doubt be a lot of urine present. I take it that the urine is quite aseptic and the system accommodates itself. In the uræmic poisoning I have mentioned it has been present in the sheath: when the sheath is cut open there is quite an abscess sac with urine in it, and you find practically nothing else to account for the death.

I would advise Mr. Collinson to proceed further than the microscopic stage with his suspected anthrax post-mortem. Unless I find swelling of the throat apart from swelling of the carcase I go on with my post-mortem examination. The anthrax bacilli are better found in the lymphatic gland than in the blood.

Swine erysipelas is mentioned as being due to food, I suppose it is meant when there are acute skin lesions. In such cases I am inclined to think, with Mr. Furness, that although it is called erysipelas it is more a kind of "pig's measles." Where big patches are present with sloughing, etc., there is no doubt that it is swine erysipelas. Mr. Furness in his remarks seemed to agree with me in most things.

There is one thing that has struck me in Sheffield with regard to rickets. There have been a number of cases near clay pits and in old brick yards, and I have formed the opinion that clay sub-soil may be responsible to a certain extent.

There is a matter that no one has mentioned which did not occur to me in writing the paper, that is about

a good bed, or no bed. In many cases where feeders have fatting pigs they very often do not give any bedding. They sweep them out daily, and find that the pigs always go after a few days to one place to lie down and keep this clean. Such pigs do not suffer from rickets or anything else as a result.

Epilepsy in a sow, and fits in a sow close to pigging, I am rather inclined to think is due to what is called Eclampsia in woman. I have not seen the degeneration of the muscles of the loin that Mr. Sampson mentioned, but I will look for it in the future.

One other matter that Mr. Furness referred to was horse-flesh, and hospital swill. I am inclined to think that what happens in one case occurs to some extent in the other. It is a well-known fact that unless hospital swill is cooked within 24 hours it seems to undergo some decomposition, and causes some inflammation of the intestines of the pig. Some people go so far as to say that if it is cooked in iron boilers it is more dangerous than if boiled in wooden tubs.

Mr. Fletcher mentioned swine erysipelas and milk fever. His treatment of calomel is good. I like calomel, but as to the result of using jalap I am strongly of opinion that it is the quickest aperient you can give to a pig. The point is this—Mr. Fletcher gives 2 drachms, and another drachm after 12 hours, and still another drachm after a further 12 hours: but with jalap you get the desired result at the quickest possible moment.

Raw potatoes: I did not say in my paper that I meant raw potatoes as a staple food, I meant as a temporary change of food. Where pigs have been grazing for a month or two and the snow comes, it is a common practice in some parts for farmers to scatter raw potatoes and turnips in a field or covered yard in order to make the pigs walk about to get their food. Pigs must have exercise—otherwise they will go wrong.

Mr. Bowett mentioned squealing and absence of squealing when the pigs are being moved. It is simply, I think, a squeal of fear. Mr. Bowett agrees with me that sharps, etc., are adulterated. He also mentions acute enteritis with or without ulcers in swine fever, a condition I often see.

Death of the skin. I think there is very little doubt that where you get sores on the teats of the sow and the sores carry to the mouth of the sucking pigs, you get death of the part due to the bacillus of necrosis.

I should think Cod liver oil is a good thing for rickets.

I do not know, Mr. President, whether my paper has been of any service, but it has provided something to talk about for the evening. I thank you for its reception and for the discussion.

The PRESIDENT: Gentlemen,—I think we all owe a vote of thanks to Mr. Lloyd for his very able paper. I cannot speak without reiterating my remarks with regard to the time at which this paper has been given. His answers to the questions have been full and to the point. He has, however, not given us any information as to the serum treatment of swine fever. We shall be glad to hear at a future meeting what is his experience of that serum treatment, and will be glad if he will give us a short supplementary paper on the subject. I have very great pleasure in proposing that our best thanks be given to Mr. Lloyd for his kindness in giving us the paper. It is a pity that the paper could not be circulated to the members before the meeting in order that we might be in a position to come ready with questions on the amount of matter that has been put into it.

Mr. G. J. FURNESS seconded, and the vote of thanks was carried with applause.

Mr. LLOYD, in reply, promised to fall in with the President's suggestion with regard to giving a supplementary paper on "The Serum Treatment of Swine Fever."

The meeting closed with a vote of thanks to the President for his presence in the Chair.

J. S. LLOYD, Hon. Sec.

NORTH OF SCOTLAND VETERINARY ASSOCIATION.

In his presidential address at the half-yearly meeting held in Aberdeen, Mr. William Hepburn, F.R.C.V.S., Aberdeen, referred to what the profession had done in eradicating all kinds of diseases of live stock. Other diseases more or less unknown to them, might appear in the near future in consequence of demobilisation and the dissemination of Government stock throughout the country. The eradication of tuberculosis among cattle was slowly but surely being effected. This encouraging feature was largely due to the alteration in the system of rearing young stock, which were now segregated from the dams except at suckling time. Sometimes it had been found necessary to supply a foster parent.

The exporters' grievance as to animals re-acting at the port of disembarkation could be overcome if tuberculin was controlled by the State. At the present time it is possible to obtain tuberculin from almost any chemist.

The means for successfully combating contagious abortion among cattle seemed to be an accomplished fact. This disease had been an important factor in establishing the custom among dairy farmers of not serving their cows, many of which were disposed of in the fat markets before they had reached the zenith of their milking powers. This was a very wasteful practice, and there was now no valid reason to continue it.

Having spoken of the progress of the profession on scientific lines, Mr. Hepburn advocated State insurance of stock in any scheme of small holdings formulated by the Goveenment.

He urged the necessity of breeding a heavier type of horse to meet the demand that was being made on these animals. It was unfortunate for the Clydesdale breed that type was too frequently set in the show ring, surrounded with big vested interests, and difficult to counteract. If the Clydesdale horse of the future was built on heavier lines there could be little fear as to his marketable value or his displacement by mechanical traction.

In the discussion which followed, Mr. William Brown, of the Aberdeen College of Agriculture, made reference to the proposed investigation into navel-ill, and invited the members of the association to assist, a request which was cordially agreed to.—*N.B.A.*

SOUTHERN COUNTIES VETERINARY MEDICAL SOCIETY.

[NATIONAL V.M.A. SOUTHERN BRANCH.]

The following notice has been sent to the members:—

Arundel, March 31st, 1917.

The 36th annual meeting of the Society would have been convened this month, but in view of the abnormal circumstances now prevailing—the restricted train service, the high fares, and the great pressure at which those of our members who are not already on active service are at present working—it has been decided by the President, Mr. G. Livesey, of Hove, after consultation with the Honorary Treasurer and myself, to postpone the meeting.

Since the last annual meeting was held in London in March, 1916, two general meetings have been held—at

Brighton in September, and in London in December, but on neither occasion was the attendance encouraging, although interesting and helpful discussions took place.

The Hon. Treasurer's financial statement is appended, and I have to report no resignations. In common with the profession generally, we all deplore the loss by death of Mr. James F. Simpson, of Maidenhead, and Mr. William Shipley, of Great Yarmouth, who, until recently were two of the most active and useful members of this Society.

I am joining the Army early next month, but Mr. H. W. Aylott, of *The Gazette* Office, Worthing, who has reported our meetings for many years past, has consented, in consultation with the President, to undertake any secretarial work that may be necessary in the meantime. Outstanding subscriptions should be sent, as heretofore, to the Hon. Treasurer, Mr. E. Whitley Baker, Glencairn, Wimborne.

Should there be a desire on the part of any of the members to have a meeting called, the President will be pleased to convene one at a time and place most convenient to those concerned if duly notified according to the Rules of the Society.

JAS. T. ANGWIN, Lt. A.V.C., Hon. Sec.

PARLIAMENTARY.

BOARD OF AGRICULTURE VETERINARY SURGEONS.

Sir R. Winfrey in reply to a question, said the Board were aware of the need of the Army for veterinary surgeons, but they feel that the business of safeguarding the flocks and herds of the country from the spread of disease is especially important at the present time.

He had prepared a table showing the names, ages, dates of appointment, etc., of the veterinary officers engaged in the Board's offices and at the laboratory. All these officers, with the exception of the chief veterinary officer, are inspectors under the Diseases of Animals Act, 1894. None are wholly engaged in research work. The chief veterinary officer and Mr. Esmond Brown are partially engaged in such work. The work of all others comes within the scope of the Diseases of Animals Act, 1894.

SERUM TREATMENT OF SWINE FEVER.

Mr. Field asked the Parliamentary Secretary to the Board of Agriculture whether he could state the result of the serum treatment of swine fever, making allowances for the decreased number of pigs; whether arrangements could be made to authorise competent local veterinary surgeons to do the necessary work; and whether precautions were taken to prevent infection from an outbreak without interfering unduly with the movements of swine.

Mr. Prothero: The results of the serum treatment of swine fever during the comparatively short period in which the treatment has been in voluntary operation may be regarded as satisfactory; but it does not affect the risk of the spread of the disease. If my hon. friend could find time to see the chief veterinary officer at the Board of Agriculture and Fisheries, he would be given the fullest details. At least nine-tenths of the Department's local work in regard to serum is done by local veterinary surgeons. The answer to the last part of the question is that the necessary precautions to prevent the spread of infection from an outbreak of fever are, the Board believe, taken in each case with the minimum of interference with the movement of swine. But I may add that the restrictions are being carefully considered with a view to their possible relaxation.

Colonel Lockwood: Is a supply of serum furnished to the local veterinary surgeons?

Mr. Prothero: I believe it is.

The Joint-ill Enquiry.

The preliminary work in connection with this enquiry has been completed, the three local sub-committees are getting to work. The first meeting of a local sub-committee was held in Aberdeen. On the invitation of Mr. Wm. Brown, M.R.C.V.S., F.R.C.P., of Marischal College, who is convenor alike of the Scientific Sub-Committee and the Aberdeen Local Committee, breeders and veterinary surgeons met in the Imperial Hotel, and Mr. Brown outlined the nature of the enquiry and the character of the work which would be required from breeders. Prof. Matthew Hay was present and urged the value of accurate observation on their part, and careful and timeous recording of the facts as they came before them. An interesting exchange of opinions and experiences followed.

Similar meetings will be called in Edinburgh and Glasgow by Prof. Charnock Bradley, M.D., M.R.C.V.S., of the Royal (Dick) Veterinary College, and the veterinary surgeon who will require to take the place of Prof. John R. M'Call, M.R.C.V.S., who has been called for military service abroad. These meetings serve a very useful purpose. Breeders are brought face to face with their responsibilities in connection with the enquiry.

Joint-ill appears to be very irregular in its appearance. Mr. George Bean has been breeding Clydesdales for about forty years and he has had only six cases of joint-ill in that long period. He will breed anywhere from half-a-dozen to a dozen foals every year, and only ordinary precautions are taken in connection with the parturition of mares. On the other hand, one of the most successful breeders in the North, whose loose-boxes are kept ideally clean, with an experience much shorter than Mr. Bean's, has had perhaps a greater number of cases. He is a firm believer in the possibility of infection being conveyed by the mare's milk, and would not accept as foster-mother for a foal any mare whose own foal had died of joint-ill. Other breeders at the meeting were equally emphatic on this point.

Edinburgh district meeting of the Clydesdale Joint-Ill Committee was held, on the call of Prof. Charnock Bradley, in the new Royal (Dick) College on Wednesday afternoon, 28th ult. There was a good attendance of breeders and veterinary surgeons.—*The Scottish Farmer.*

REVIEW.

THE PATHOLOGY AND DIFFERENTIAL DIAGNOSIS OF INFECTIOUS DISEASES OF ANIMALS. By VERANUS ALVA MOORE, B.S., M.D., V.M.D., Professor of Comparative Pathology, Bacteriology, and Meat Inspection, New York State Veterinary College at Cornell University, and Dean of the College. Fourth Edition, Revised and Enlarged, with 120 illustrations. Pp. xvj+593. Price 17/- nett. (New York. The Macmillan Company. 1916).

This book is planned upon somewhat unusual lines; and it would be well to indicate this clearly, before summarising the work. It deals with "the etiology and morbid anatomy of the specific infectious diseases of animals, and the methods available for their diagnosis," and it also includes not a little symptomatology. Prevention and control are treated briefly, the main considerations being clearly and succintly summarised; and very little—in the case of the great majority of diseases, nothing at all—is said regarding medicinal treatment. On the other hand, much attention is given to the modern diagnostic tests, some of which—such as those for glanders, including the laboratory technique of the complement-fixation test—are dealt with very fully and carefully. Perhaps the work may be best described as being a summary of the most essential

knowledge bearing upon the differential diagnosis of infectious disease. Its field, therefore, is much narrower than that of any good text-book on veterinary medicine, but still remains very wide.

A very comprehensive survey is taken of the whole field of animal infectious disease, including not a few conditions by no means well known to the bulk of practitioners, and with full recognition of the importance of avian diseases. Obviously this means that a very great amount of subject matter is treated in a comparatively small space; and we cannot help regretting that the author has chosen to still further curtail the scientific portion by devoting between forty and fifty pages to the United States regulations for the inter-state shipment of live stock and for meat inspection. These may be useful to American readers—though the first-named regulations are very frequently altered—but they can be of no real value to English ones.

The work may fairly be commended as useful both to students and to some practitioners, though we cannot call it indispensable to either. The space is judiciously allotted; and, though some subjects are necessarily dealt with briefly, the selection and condensation of the most essential knowledge is excellently done. As was almost inevitable in a work covering so wide and constantly changing a field, there are some points open to criticism—strangles, for instance, is positively stated to be caused by the *Streptococcus equi*, and the possibility that that organism may be only an agent of secondary infection is not mentioned. Taking the work as a whole, it is undoubtedly a good summary of the field it covers, which is well worthy of treatment in a special text-book, and affords room for a larger one than this.

W. R. C.

SUBSCRIPTIONS TO R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons begs to acknowledge the receipt of the following subscriptions:—

Central Veterinary Society	(1916)	£21	0	0
W. Awde, Capt. A.V.C.	(1916, 1917)	2	2	0
W. Scott Clark, Coupar Angus	(1916, 1917)	2	2	0
F. G. Edwards, Chester		1	1	0
A. B. Forsyth, Cannock, Staffs.		1	1	0
H. G. Hewetson, Southport		1	1	0
J. D. Rankin, Colne, Lancs.		1	1	0
H. K. Roberts, Capt. A.V.C.	(1916, 1917)	2	2	0
R. C. Trigger, Newcastle, Staffs.		1	1	0
W. Trigger, " "		1	1	0
W. Walker, Capt. A.V.C. "		1	1	0
Previously acknowledged		459	16	0
		£494	9	0

ARMY VETERINARY SERVICE

Extracts from *London Gazette*,

WAR OFFICE, WHITEHALL, March 29.

REGULAR FORCES. ARMY VETERINARY CORPS.

To be temp. Lieut.:—J. Ker (Mar. 15.)

Mar. 30.

Capts. to be actg. Majors whilst employed as Asst. Dirs. of Vet. Servs.:—J. J. Hilliard (Feb. 1); R. A. Goodcridge (Feb. 5).

Mar. 31.

Temp. Lt. to be temp. Capt.:—P. Carter (Mar. 9).

Temp. Lt. T. I. Alexander relinquishes his commn. on termn. of engmnt. (Dec. 19, 1916) (substituted for notification in *Gazette* of Jan 5).

April 3.

Temp. Lt. to be temp. Capt.:—E. J. B. Sewell (Jan. 7).

To be temp. Lieut.:—B. L. Secker (Mar. 21).

TERRITORIAL FORCE, ARMY VETERINARY CORPS.

Mar. 30.

Capt. (temp. Maj.) W. S. Carless relinquishes his temp. rank on alteration in posting (Mar. 21).

The following casualty is reported:—

DIED—Pte. R. Carter, 022430 (North Shields).

OBITUARY.

ARCHIBALD STEVENSON JONES, M.R.C.V.S., Kilkenny, Ireland. Graduated, Edin: April, 1870

Mr. Jones died on February 27th, aged 65.

The late Mr. T. Jack.

Mr. Jack, a well-known veterinary surgeon, of the firm of Thompson, Jack & Son, had been ailing for some time, but his death was rather unexpected. He was a native of Perthshire, and was trained at the Dick College: in 1865 he went to Sunderland as an assistant to Mr. Thompson, whom he afterwards joined in partnership. Mr. Thompson died in 1901, and in 1904, Mr. Jack's son, Mr. T. T. Jack, entered the firm. Deceased, who was well known and highly respected in the town and district leaves a widow, two sons and two daughters, the second son being on active service.

Military Representative and Veterinary Surgeon.

The Military Representative applied for a review and withdrawal of the certificate of conditional exemption granted to Mr. John Cane (39), passed in Class A, veterinary surgeon, Wrexham, owing to the demand for veterinary surgeons for the Army Veterinary Corps.

The Military Representative: The circumstances are different to-day from which they were when you were last before the Court with regard to the need for men. You realise that, don't you?

Mr. Cane: I don't.

I am afraid you are an exception to the rule. There is urgent need for men, particularly men in your profession, and you are as valuable to the army as doctors at the present moment. The quadrupeds must be attended to as well as the men, for without the former we should be placed at a considerable disadvantage. I recognise that you are doing excellent work where you are, but there are other fully qualified men in the town who might be able to carry on. In the event of your going into the army, the arrangement between the Army Veterinary Corps and the Royal College of Veterinary Surgeons is that another veterinary surgeon in the neighbourhood, upon whom the army has no claim, is expected to take charge of your practice and restore it intact on your return. Any violation of that arrangement—that is to say, if the person taking charge took from you any one of your clients, and you could bring it home—very serious action would be taken by the authorities. What do you say to that?

Mr. Cane: On whose authority do you make that statement?

The Military Representative: I have it from the Army Authorities direct.

Mr. Cane: The Army Authorities have no control over anyone over military age.

The Military Representative: With the exception of yourself I do not think there is a veterinary surgeon of military age within fifty miles of Wrexham who has not volunteered.

Mr. Cane: Those who have gone have gone for one reason or another. One would be to better themselves. There is a good reason for joining; if they have a good reason for stopping behind they don't go.

The Military Representative: You have a large number of agricultural clients, and you must not think I depreciate the value of your services. The army, however, considers you are of more value to the State as a soldier than you are in civil life, however valuable your civil duties may be. There are other men in the town who could deal with your work.

Mr. Cane: I cannot agree with you. Knowing what the others are doing, I can safely say that they could not do the work. It is absolutely beyond them. They are at it night and day at present, and they get my cases when I happen to be out, and I get their's when they are out.

I have placed the position before you, and I throw the responsibility on you of declining to meet it. Every man of the slightest value to his country should at any sacrifice give his services, and all personal considerations should be set aside. I am assured your position will be secured to you on your return. In the meantime the civilian population would have to do the best it could.

Mr. Cane: The army take veterinary surgeons up to fifty if it comes to that.

But they have no claim upon men of that age, and they have upon you. I think you are the exception in this county of a man of military age in your profession who has not undertaken to perform military duties. I am putting it in a friendly way, Mr. Cane; I am only doing my duty.

Mr. Cane: Quite right.

The Military Representative: I am not at all sure, now that the Government have taken over the collieries, whether they can take the responsibility of employing you to attend to the pit ponies, seeing that you are of military age. Then there are the remount depots, now known as allotees. Strict instructions have, I understand, been issued that no veterinary surgeons of military age are to be employed with these horses, so you see the view of the Government is so serious with regard to the importance of your office that they are making restrictions.

Mr. Cane: I consider my duties at home are just as essential as any services in the army.

The Military Representative: Personally, I think you ought to go.

Mr. John Roberts (Agricultural Representative): How many years have you been here?

Mr. Cane: Seventeen.

Did you buy a practice? No, I worked it up.

What is the extent of it to-day? I have about 500 clients of the farmer class alone.

Mr. Roberts said the fact that Mr. Cane had obtained so many clients in 17 years proved his qualifications, and showed that he was essential to agriculture. At every tribunal the Agricultural Representative was pressed to apply for the conditional exemption of all men in any profession appertaining to agriculture. Agriculture had now come back to its own, and they ought not to cripple it in any way. It was a very important time of the year, calving and foaling being in progress, and enormous losses would accrue to stock if Mr. Cane were called up. Speaking for the farmers of the district he could safely say it would be impossible for the few veterinary surgeons in Wrexham to cope with the work.

The Military Representative pointed out that it was provided in view of the requirements, that no veterinary surgeon would be asked to serve in the ranks.

Mr. Cane said there were only two other veterinary surgeons in the town who did active work. Another one was unable to do much owing to ill-heath.

In reply to a member of the tribunal, Mr. Cane said he was engaged by four collieries to attend to their ponies the total number being 430.

The Clerk: Do you think your practice is more essential to the community than services in France? —Yes.

Assuming you joined up, are you strongly of opinion your practice would not be the same when you returned as if you stayed at home? I am certain it would not.

If it were possible to get a properly qualified veterinary surgeon to look after it, would you have any objection? The responsibility would be very great. I would not like to risk it.

Mr. John Roberts: It is a question as to whether the farmers would accept him.

The application of the Military Representative was refused.—*The Wrexham Advertiser.*

[We learn that a further appeal was turned down, and the applicant is required to join up on May 1st.]

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.		Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange. ‡		Sheep Scab.	Swine Fever.	
		Out-breaks (a)	Animals.	Out-breaks (a)	Animals.	Out-breaks (b)	Animals.	Out-breaks (b)	Animals.	(b)	Out-breaks (a)	Slaughtered. *
GT. BRITAIN. Week ended Mar. 31		13	13			1	1	61	123	12	46	16
Corresponding week in	1916 ...	14	18			1	2	48	115	1	105	316
	1915 ...	7	7							4	68	296
	1914 ...	15	18					32	58	4	94	1129
Total for 13 weeks, 1917		180	211			8	14	1015	2151	322	553	196
Corresponding period in	1916 ...	168	201	1	24	19	58	1001	2474	149	1078	3376
	1915 ...	208	228			7	11			134	947	3968
	1914 ...	243	261	11	74	26	70	945	1764	184	781	7278

‡ The Parasitic Mange Order of 1911 was suspended from 6th August, 1914, to 27th March, 1915, inclusive.

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked :—Kent 1

Board of Agriculture and Fisheries, April 3, 1917. Excluding outbreaks in army horses.